UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,160	04/09/2001	Tutomu Murase	Q63825	6552

7590 08/20/2004		EXAMINER
SUGHRUE, MION, ZINN, MACPEAK & SEAS		YAO, KWANG BIN
2100 Pennsylvania Avenue, N.W.		

ART UNIT	PAPER NUMBER
2667	

Washington, DC 20037

DATE MAILED: 08/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/828,160	MURASE, TUTOMU
	Examiner	Art Unit
	Kwang B. Yao	2667

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>09 April 2001</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>*1-11*</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>*1,2,9 and 11*</u> is/are rejected.

7)☒ Claim(s) <u>*3-8 and 10*</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>*4/9/01*</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Priority

1.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

Claim Objections

2.   Claim 10 is objected to because of the following informalities: it appears that

claim 10 depends on claim 9 rather than claim 5. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Ahuja et al.

(US 5,946,679).

Ahuja et al. discloses a system for locating a route comprising the following

features: as described on column 3, lines 31-39, and lines 54-56, regarding claim 11,

cache table management device (Multilevel searching) used in a router comprising: a

forwarding prefix match searches table (Patricia-tree) for being used to perform longest

of all entries, and a cache table (Cache including hash table) for being used to perform

longest prefix match searches a portion of the entries, wherein when an entry in the

forwarding table (Patricia-tree) is input to the cache table (Cache including hash table),

an entry group is selected along with all child entries of the input entry, and when an

entry is extracted.

5.   Claims 1, 9 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by

Hariguchi et al. (US 6,665,297).

Hariguchi et al. discloses a communication system comprising the following

features: as depicted in Figs. 2A, 2B, 3-5, and column 4-9, regarding claim 1, a cache

table (Hash Tables 70) management device used in a router (26) wherein the device

comprising: a forwarding table (CAM 80) having a plurality of entries, each of said

entries having a set of information showing a collection of addresses comprised of prefix

bits and prefix lengths, information showing packet output paths for the address

collection, the priority level information (Priority Encoder 170), and said forwarding

table being searched by a longest prefix match search; a cache table (Hash Tables 70)

for, when entries are substituted, being written the entry group containing the entry to be

substituted and the applicable child of the substituted entry from the forwarding table

(CAM 80), and for being deleted on moved, when deleting or moving entries, the entry

group containing the applicable entry and the applicable parent of the deleted on moved

entry (column 9, lines 12-43); a hit record database (Status Register 164) containing hit

information added to the contents of the applicable entry among all entries of the

forwarding table (CAM 80), contents of said hit record database (Status Register 164)

being updated when a hit occurs in the forwarding table (CAM 80) or the cache table

(Hash Tables 70); a packet processing circuit (Microprocessor 54) to extract the

destination network address from an input packet, to search the forwarding table (CAM

80) or the cache table (Hash Tables 70) using the destination network address as a key,

and to transmit the packet on the acquired output paths; and an entry selection circuit

(Selection stage 88) to select entry groups to be interchanged when needed while taking

the information from the hit data base (Status Register 164) and priority level information

(Priority Encoder 170) into account; regarding claim 2, a cache table (Hash Tables 70)

management device used in a router (26) according to claim 1, wherein the cache table

(Hash Tables 70) is divided into a plurality of zones (Look-Up Table 100-10, 100-9, 100-

8), and the interchanging, deletion or movement of entry groups is performed in the

respective zones (column 9, lines 12-43); regarding claim 9, a medium for recording

programs implemented in a router (26), wherein the program comprising the steps of: (a)

implementing on a recording device, a forwarding table (CAM 80) containing a plurality

of entries each of which includes information showing the collection of addresses

comprised of prefix bits and prefix lengths, information showing the output paths of

packets for the collection of addresses and priority level information (Priority Encoder

170), said entries being searched by longest prefix method; (b) implementing the cache

table (Hash Tables 70) on a recording device, when an entry of said cache table (Hash

Tables 70) is interchanged, the entry group comprised of the entry to be added and the

child entry of the applicable entry is written from the forwarding table (CAM 80), or

when an entry is to be deleted or moved, the entry group comprised of the entry for

interchanging and the parent entry of the applicable entry is deleted or moved (column 9,

lines 12-43); (c) implementing the hit database (Status Register 164) of all entries of said forwarding table (CAM 80) on a recording device wherein said hit database or said hit information of said all entries and are update when a hit occurred in the forwarding table (CAM 80) or cache table (Hash Tables 70); (d) implementing the packet processing circuit (Microprocessor 54) in said router (26) extracting the destination network address from the applicable packet header of the input packet, searching the cache table (Hash Tables 70) or forwarding table (CAM 80) using the destination network address as a key, and for sending the packet on the acquired output path; (e)implementing entry selection circuit (Selection stage 88) on the router (26) for selecting the entry group to be interchanged by taking into account the priority level information (Priority Encoder 170) and the information from the hit database (Status Register 164) when interchanging an entry group; regarding claim 11, a cache table (Hash Tables 70) management device used in a router (26) comprising: a forwarding table (CAM 80) for being used to perform longest prefix match searches of all entries, and a cache table (Hash Tables 70) for being used to perform longest prefix match searches of a portion of the total entries, wherein when an entry in the forwarding table (CAM 80) is input to the cache table (Hash Tables 70), an entry group is selected along with all child entries of the input entry, and when an entry is extracted from the cache table, an entry group is selected along with all parent entries of the extracted entry (column 9, lines 12-43).

Allowable Subject Matter

6.   Claims 3-8 and 10 are objected to as being dependent upon a rejected base claim,

but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Kobayashi et al. (US 6,768,739) discloses a router.

Carr (US 6,697,363) discloses a method longest matching prefix determination.

Waters et al. (US 6,522,632) discloses an apparatus for efficient prefix search.

Tappan (US 6,295,296) discloses a router.

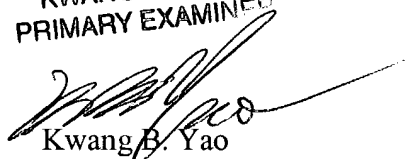Avargues et al. (US 6,104,701) discloses a system for determining best data path.

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kwang B. Yao whose telephone number is 571-272-3182.

The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chi H Pham can be reached on 571-272-3179. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

KWANG BIN YAO
PRIMARY EXAMINER

Kwang B. Yao
August 17, 2004